

# Thermotropic optical response of silicone-paraffin flexible blends

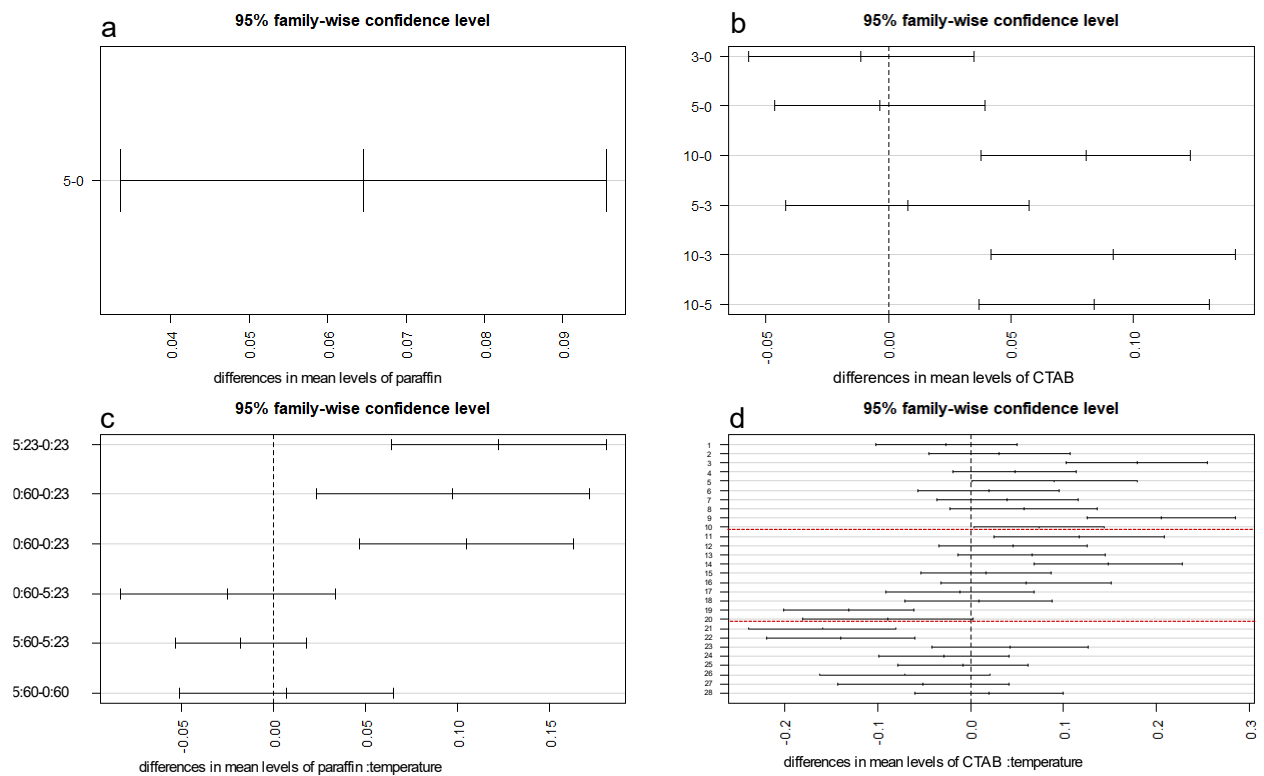
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## Supplementary materials

**Table S1.** Results of the ANOVA test on the values of elastic modulus, UTS, and strain at break. The differences are considered significant with  $Pr < 0.05$  (confidence level 95 %). The considered parameters are the content of paraffin (0 or 5 wt%), the content of CTAB (0, 3, 5, or 10 phr with respect to paraffin), and the testing temperature (23 or 60 °C).

Elastic modulus					
	Sum sq	Mean sq	F value	Pr (>F)	
paraffin	0.02712	0.02712	16.908	2.094E-4	***
CTAB	0.05165	0.05165	32.2018	1.732E-6	***
T	5.15E-4	5.15E-4	0.3213	0.57425	
paraffin:T	0.02018	0.02018	12.5809	0.00108	**
CTAB:T	0.09939	0.09939	61.9661	2.02E-9	***
Residuals	0.05935	0.0016			
UTS					
	Sum sq	Mean sq	F value	Pr (>F)	
paraffin	2.328	2.328	25.9192	1.064E-5	***
CTAB	0.0084	0.0084	0.0932	0.7619	
T	0.0367	0.0367	0.4083	0.5268	
paraffin:T	5.2	5.2	57.8945	4.448E-9	***
CTAB:T	3.0291	3.0291	33.7243	1.145E-6	***
Residuals	3.3233	0.0898			
Strain at break					
	Sum sq	Mean sq	F value	Pr (>F)	
paraffin	1.86728	1.86728	88.6622	2.304E-11	***
CTAB	0.66162	0.66162	31.4152	2.153E-6	***
T	0.01615	0.01615	0.7669	0.38683	
paraffin:T	0.51197	0.51197	24.3093	1.749E-5	***
CTAB:T	0.09173	0.09173	4.3554	0.04384	*
Residuals	0.77924	0.02106			

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

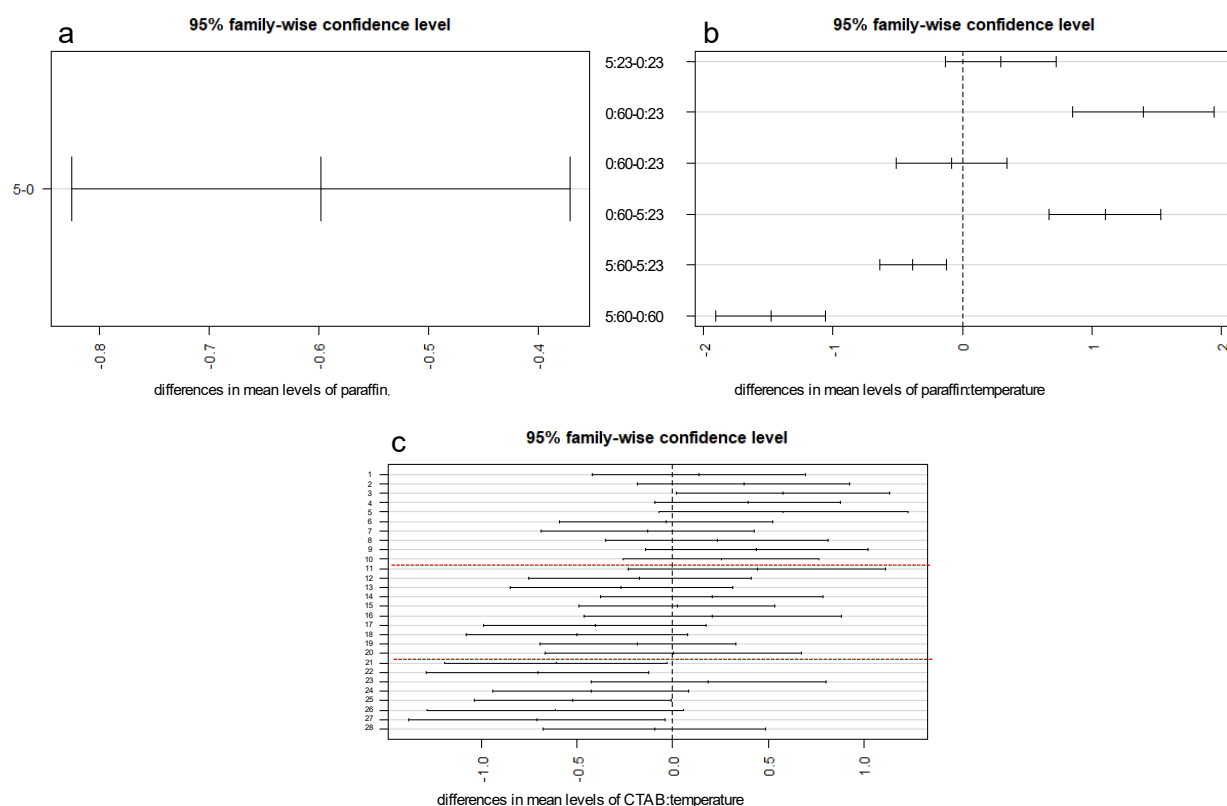


**Figure S1:** Results of Tukey's test for the values of the elastic modulus. Only the parameters found significant in the ANOVA test are reported. The pairs with the bar not crossing the 0 show a significant difference. (a) differences in the mean levels of paraffin; (b) differences in the mean levels of CTAB; (c) differences in the mean levels of paraffin:temperature; (d) Differences in the mean levels of CTAB:temperature. Data are in the following order: 1 = 3:23-0:23; 2 = 5:23-0:23; 3 = 10:23-0:23; 4 = 0:60-0:23; 5 = 3:60-0:23; 6 = 5:60-0:23; 7 = 10:60-0:23; 8 = 5:23-3:23; 9 = 10:23-3:23; 10 = 0:60-3:23; 11 = 3:60-3:23; 12 = 5:60-3:23; 13 = 10:60-3:23; 14 = 10:23-5:23; 15 = 0:60-5:23; 16 = 3:60-5:23; 17 = 5:60-5:23; 18 = 10:60-5:23; 19 = 0:60-10:23; 20 = 3:60-10:23; 21 = 5:60-10:23; 22 = 10:60-10:23; 23 = 3:60-0:60; 24 = 5:60-0:60; 25 = 10:60-0:60; 26 = 5:60-3:60; 27 = 10:60-3:60; 28 = 10:60-5:60.

**Table S2:** Results of Tukey's test for the elastic modulus. Pairs are considered significantly different with a  $p_{adj} < 0.05$  (confidence level 95 %).

<i>paraffin</i>				
	<i>diff</i>	<i>lwr</i>	<i>upr</i>	<i>p_adj</i>
5-0	0.06454	0.03354	0.09553	1.711E-4
<i>CTAB</i>				
	<i>diff</i>	<i>lwr</i>	<i>upr</i>	<i>p_adj</i>
3-0	-0.01117	-0.0572	0.03486	0.91258
5-0	-0.00342	-0.04635	0.03951	0.9964
10-0	0.08058	0.03765	0.12351	8.34E-5
5-3	0.00775	-0.04213	0.05763	0.97461
10-3	0.09175	0.04187	0.14163	1.122E-4
10-5	0.084	0.03698	0.13102	1.706E-4
<i>temperature</i>				
	<i>diff</i>	<i>lwr</i>	<i>upr</i>	<i>p_adj</i>
60-23	0.00371	-0.02042	0.02783	0.75661
<i>Paraffin:temperature</i>				

	<i>diff</i>	<i>lwr</i>	<i>upr</i>	<i>p_adj</i>
5:23-0:23	0.12241	0.06398	0.18085	1.48E-5
0:60-0:23	0.0975	0.02315	0.17185	0.00624
5:60-0:23	0.10466	0.04654	0.16279	1.523E-4
0:60-5:23	-0.02491	-0.08335	0.03352	0.65979
5:60-5:23	-0.01775	-0.05331	0.01781	0.53865
5:60-0:60	0.00716	-0.05096	0.06529	0.98699
<b>CTAB:temperature</b>				
	<i>diff</i>	<i>lwr</i>	<i>upr</i>	<i>p_adj</i>
3:23-0:23	-0.02632	-0.10242	0.04977	0.94807
5:23-0:23	0.03086	-0.04524	0.10695	0.8882
10:23-0:23	0.17886	0.10276	0.25495	3E-7
0:60-0:23	0.04759	-0.01864	0.11382	0.31198
3:60-0:23	0.09023	0.00137	0.17909	0.04446
5:60-0:23	0.01941	-0.05668	0.09551	0.99036
10:60-0:23	0.03941	-0.03668	0.11551	0.70287
5:23-3:23	0.05718	-0.0223	0.13666	0.31045
10:23-3:23	0.20518	0.1257	0.28466	0
0:60-3:23	0.07391	0.00382	0.144	0.03284
3:60-3:23	0.11655	0.02478	0.20833	0.00543
5:60-3:23	0.04573	-0.03374	0.12521	0.58595
10:60-3:23	0.06573	-0.01374	0.14521	0.16668
10:23-5:23	0.148	0.06852	0.22748	2.32E-5
0:60-5:23	0.01673	-0.05336	0.08682	0.99351
3:60-5:23	0.05937	-0.0324	0.15115	0.4408
5:60-5:23	-0.01145	-0.09092	0.06803	0.99974
10:60-5:23	0.00855	-0.07092	0.08803	0.99996
0:60-10:23	-0.13127	-0.20136	-0.06118	2.1E-5
3:60-10:23	-0.08863	-0.1804	0.00315	0.06455
5:60-10:23	-0.15945	-0.23892	-0.07997	6E-6
10:60-10:23	-0.13945	-0.21892	-0.05997	6.37E-5
3:60-0:60	0.04264	-0.04114	0.12642	0.72025
5:60-0:60	-0.02818	-0.09827	0.04191	0.89253
10:60-0:60	-0.00818	-0.07827	0.06191	0.99994
5:60-3:60	-0.07082	-0.16259	0.02095	0.23284
10:60-3:60	-0.05082	-0.14259	0.04095	0.6307
10:60-5:60	0.02	-0.05948	0.09948	0.99111

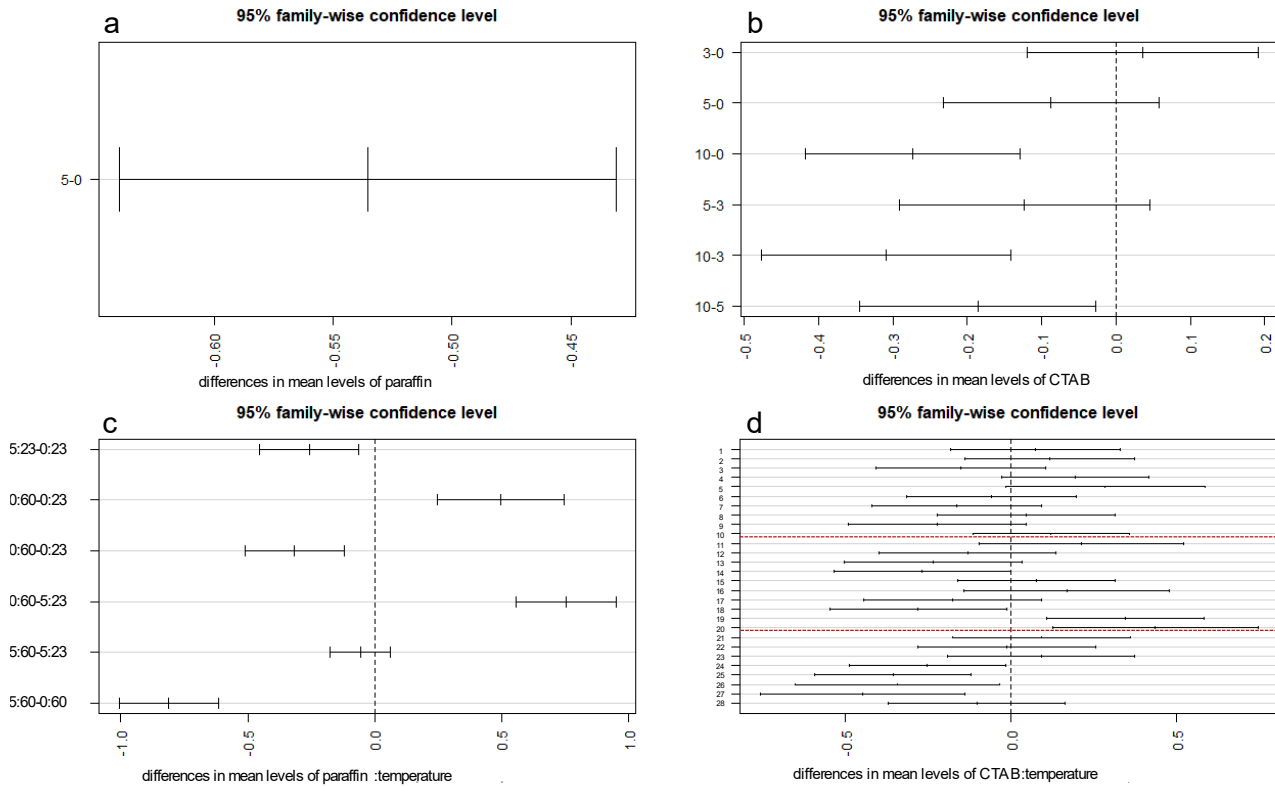


**Figure S2:** Results of the Tukey test for the values of the UTS. Only the parameters found significant in the ANOVA test are reported. The pairs with the bar not crossing the 0 show a significant difference. (a) differences in the mean levels of paraffin; (b) differences in the mean levels of paraffin:temperature; (c) Differences in the mean levels of CTAB:temperature. Data are in the following order: 1 = 3:23-0:23; 2 = 5:23-0:23; 3 = 10:23-0:23; 4 = 0:60-0:23; 5 = 3:60-0:23; 6 = 5:60-0:23; 7 = 10:60-0:23; 8 = 5:23-3:23; 9 = 10:23-3:23; 10 = 0:60-3:23; 11 = 3:60-3:23; 12 = 5:60-3:23; 13 = 10:60-3:23; 14 = 10:23-5:23; 15 = 0:60-5:23; 16 = 3:60-5:23; 17 = 5:60-5:23; 18 = 10:60-5:23; 19 = 0:60-10:23; 20 = 3:60-10:23; 21 = 5:60-10:23; 22 = 10:60-10:23; 23 = 3:60-0:60; 24 = 5:60-0:60; 25 = 10:60-0:60; 26 = 5:60-3:60; 27 = 10:60-3:60; 28 = 10:60-5:60.

**Table S3:** Results of Tukey's test for the UTS. Pairs are considered significantly different with a  $p_{adj} < 0.05$  (confidence level 95 %).

paraffin				
	diff	lwr	upr	p_adj
5-0	-0.59793	-0.82499	-0.37087	6.4E-6
CTAB				
	diff	lwr	upr	p_adj
3-0	0.06831	-0.26895	0.40557	0.94646
5-0	-0.06744	-0.38193	0.24706	0.93738
10-0	-0.01244	-0.32693	0.30206	0.99955
5-3	-0.13575	-0.50116	0.22966	0.74765
10-3	-0.08075	-0.44616	0.28466	0.93202
10-5	0.055	-0.28951	0.39951	0.97257
temperature				
	diff	lwr	upr	p_adj
60-23	-0.05091	-0.22768	0.12586	0.56191
paraffin:temperature				

	<i>diff</i>	<i>lwr</i>	<i>upr</i>	<i>p_adj</i>
5:23-0:23	0.29586	-0.13223	0.72396	0.26052
0:60-0:23	1.395	0.85028	1.93972	4E-7
5:60-0:23	-0.08582	-0.51164	0.34001	0.94721
0:60-5:23	1.09914	0.67104	1.52723	4E-7
5:60-5:23	-0.38168	-0.64221	-0.12115	0.00202
5:60-0:60	-1.48082	-1.90664	-1.05499	0
<b>CTAB:temperature</b>				
	<i>diff</i>	<i>lwr</i>	<i>upr</i>	<i>p_adj</i>
3:23-0:23	0.13884	-0.41865	0.69633	0.99164
5:23-0:23	0.37124	-0.18625	0.92874	0.40451
10:23-0:23	0.57724	0.01975	1.13474	0.03811
0:60-0:23	0.39346	-0.09178	0.87869	0.18436
3:60-0:23	0.58029	-0.07072	1.23131	0.10934
5:60-0:23	-0.03397	-0.59147	0.52352	1
10:60-0:23	-0.12997	-0.68747	0.42752	0.99437
5:23-3:23	0.2324	-0.34988	0.81469	0.89602
10:23-3:23	0.4384	-0.14388	1.02069	0.25904
0:60-3:23	0.25461	-0.25891	0.76814	0.74525
3:60-3:23	0.44145	-0.23091	1.11382	0.42222
5:60-3:23	-0.17281	-0.7551	0.40947	0.97706
10:60-3:23	-0.26881	-0.8511	0.31347	0.80586
10:23-5:23	0.206	-0.37628	0.78828	0.94181
0:60-5:23	0.02221	-0.49131	0.53574	1
3:60-5:23	0.20905	-0.46331	0.88141	0.97039
5:60-5:23	-0.40521	-0.9875	0.17707	0.35016
10:60-5:23	-0.50121	-1.0835	0.08107	0.1342
0:60-10:23	-0.18379	-0.69731	0.32974	0.93835
3:60-10:23	0.00305	-0.66931	0.67541	1
5:60-10:23	-0.61121	-1.1935	-0.02893	0.0341
10:60-10:23	-0.70721	-1.2895	-0.12493	0.00878
3:60-0:60	0.18684	-0.42694	0.80062	0.97362
5:60-0:60	-0.42743	-0.94095	0.0861	0.16124
10:60-0:60	-0.52343	-1.03695	-0.0099	0.04317
5:60-3:60	-0.61426	-1.28663	0.0581	0.0938
10:60-3:60	-0.71026	-1.38263	-0.0379	0.03235
10:60-5:60	-0.096	-0.67828	0.48628	0.99937



**Figure S3:** Results of Tukey's test for the values of the strain at break. Only the parameters found significant in the ANOVA test are reported. The pairs with the bar not crossing the 0 show a significant difference. (a) differences in the mean levels of paraffin; (b) differences in the mean levels of CTAB; (c) differences in the mean levels of paraffin:temperature; (d) Differences in the mean levels of CTAB:temperature. Data are in the following order: 1 = 3:23-0:23; 2 = 5:23-0:23; 3 = 10:23-0:23; 4 = 0:60-0:23; 5 = 3:60-0:23; 6 = 5:60-0:23; 7 = 10:60-0:23; 8 = 5:23-3:23; 9 = 10:23-3:23; 10 = 0:60-3:23; 11 = 3:60-3:23; 12 = 5:60-3:23; 13 = 10:60-3:23; 14 = 10:23-5:23; 15 = 0:60-5:23; 16 = 3:60-5:23; 17 = 5:60-5:23; 18 = 10:60-5:23; 19 = 0:60-10:23; 20 = 3:60-10:23; 21 = 5:60-10:23; 22 = 10:60-10:23; 23 = 3:60-0:60; 24 = 5:60-0:60; 25 = 10:60-0:60; 26 = 5:60-3:60; 27 = 10:60-3:60; 28 = 10:60-5:60.

**Table S4:** Results of Tukey's test for the UTS. Pairs are considered significantly different with a  $p_{adj} < 0.05$  (confidence level 95 %).

paraffin				
	diff	lwr	upr	p_adj
5-0	-0.5355	-0.63986	-0.43114	0
CTAB				
	diff	lwr	upr	p_adj
3-0	0.03593	-0.11907	0.19094	0.92262
5-0	-0.08707	-0.23161	0.05748	0.37666
10-0	-0.27307	-0.41761	-0.12852	7.59E-5
5-3	-0.123	-0.29094	0.04494	0.2156
10-3	-0.309	-0.47694	-0.14106	1.119E-4
10-5	-0.186	-0.34434	-0.02766	0.01617
temperature				
	diff	lwr	upr	p_adj
60-23	0.04554	-0.0357	0.12678	0.26232
paraffin:temperature				
	diff	lwr	upr	p_adj

5:23-0:23	-0.25855	-0.4553	-0.06179	0.00612
0:60-0:23	0.495	0.24464	0.74536	3.78E-5
5:60-0:23	-0.31582	-0.51153	-0.12011	6.539E-4
0:60-5:23	0.75355	0.55679	0.9503	0
5:60-5:23	-0.05727	-0.17701	0.06247	0.5733
5:60-0:60	-0.81082	-1.00653	-0.61511	0
<b>CTAB:temperature</b>				
	<i>diff</i>	<i>lwr</i>	<i>upr</i>	<i>p_adj</i>
3:23-0:23	0.07241	-0.18382	0.32863	0.98258
5:23-0:23	0.11693	-0.13929	0.37316	0.81461
10:23-0:23	-0.15107	-0.40729	0.10516	0.55665
0:60-0:23	0.19315	-0.02986	0.41617	0.12957
3:60-0:23	0.28419	-0.01501	0.5834	0.07249
5:60-0:23	-0.05928	-0.31551	0.19695	0.99463
10:60-0:23	-0.16328	-0.41951	0.09295	0.45983
5:23-3:23	0.04453	-0.22309	0.31215	0.99933
10:23-3:23	-0.22347	-0.49109	0.04415	0.1585
0:60-3:23	0.12075	-0.11527	0.35677	0.71518
3:60-3:23	0.21179	-0.09723	0.52081	0.36882
5:60-3:23	-0.13169	-0.39931	0.13593	0.75223
10:60-3:23	-0.23569	-0.50331	0.03193	0.11756
10:23-5:23	-0.268	-0.53562	-3.79719E-4	0.04947
0:60-5:23	0.07622	-0.1598	0.31224	0.9637
3:60-5:23	0.16726	-0.14176	0.47628	0.6562
5:60-5:23	-0.17621	-0.44383	0.09141	0.41865
10:60-5:23	-0.28021	-0.54783	-0.01259	0.03481
0:60-10:23	0.34422	0.1082	0.58024	0.001
3:60-10:23	0.43526	0.12624	0.74428	0.00158
5:60-10:23	0.09179	-0.17583	0.35941	0.95029
10:60-10:23	-0.01221	-0.27983	0.25541	1
3:60-0:60	0.09104	-0.19106	0.37314	0.96383
5:60-0:60	-0.25243	-0.48845	-0.01642	0.02915
10:60-0:60	-0.35643	-0.59245	-0.12042	6.226E-4
5:60-3:60	-0.34347	-0.65249	-0.03445	0.0208
10:60-3:60	-0.44747	-0.75649	-0.13845	0.0011
10:60-5:60	-0.104	-0.37162	0.16362	0.90813